

**Claims:**

1. A method of enhancing the absorption of a pharmaceutical agent administered orally to a mammal, said method comprising the steps of
  - 5 administering to said mammal a composition comprising a glutamine-bearing compound; and
  - administering orally to said mammal the pharmaceutical agent.
2. The method of claim 1 wherein the glutamine composition is
  - 10 administered prior to the administration of the pharmaceutical agent.
3. The method of claim 1 wherein the glutamine composition is administered simultaneously with the administration of the pharmaceutical agent.
- 15 4. The method of claims 2 or 3 wherein the glutamine composition is administered orally.
5. The method of claim 4 wherein the glutamine-bearing compound is glutamine, a polymer of glutamine, or a stabilized derivative of glutamine.
- 20 6. The method of claim 5 wherein the glutamine-bearing compound is linked via its amino- or carboxy terminus to a secondary peptide or secondary protein.
7. The method of claim 5 wherein the glutamine-bearing compound
  - 25 comprises an amino acid sequence selected from the group consisting of  $(GLN)_n$ ,  $(ALA-GLN)_n$ ,  $(GLN-Y-X)_n$ ,  $(ALA-GLN-Y-X)_n$ ,  $(Y-GLN-X)_n$ -[protease cleavage site]- $(Y-GLN-X)_p$  and  $[(ALA-GLN)_n$ -protease cleavage site- $(ALA-GLN)_p]_m$  wherein X and Y are independently GLN or ALA, n and p are integers independently selected from a range of 1 to 100, and m is an integer ranging from 1 to 20.
- 30 8. The method of claim 7 wherein the glutamine-bearing compound is  $MET(ALA-GLN-GLN)_n$ ,  $MET(ALA-GLN)_n$  or  $MET[(ALA-GLN)_n$ -protease

cleavage site-(ALA-GLN)<sub>p</sub>]<sub>m</sub> wherein n and p are integers independently selected from a range of 1 to 10, and m is an integer ranging from 1 to 5.

9. The method of claim 5 wherein the stabilized glutamine derivative  
5 comprises an amino acid sequence of the general formula ALA-(GLN)<sub>n</sub>, (ALA-  
GLN)<sub>n</sub> or [(ALA-GLN)<sub>n</sub>-protease cleavage site-(ALA-GLN)<sub>p</sub>]<sub>m</sub> wherein n and p are  
integers independently selected from a range of 1 to 100, and m is an integer ranging  
from 1 to 20.

10 10. The method of claim 5 wherein the glutamine-bearing compound is  
ALA-(GLN)<sub>n</sub>, or (ALA-GLN)<sub>q</sub> wherein n is an integer ranging from 1 to 4, and q is  
an integer ranging from 1 to 3.

11. The method of claim 1 or 6 wherein the mammal is a human subject  
15 having compromised intestinal function.

12. The method of claim 11 wherein the human subject is HIV positive  
and the administered pharmaceutical agent is an antiretroviral drug.

20 13. A composition for enhancing the uptake of a pharmaceutical agent by a  
mammal, wherein the mammal is suffering from intestinal mucosa damage, said  
composition comprising a glutamine-bearing compound, or pharmaceutically-  
acceptable salt thereof, and a pharmaceutical agent.

25 14. The composition of claim 13 wherein the glutamine-bearing compound  
is glutamine, a polymer of glutamine, or a stabilized derivative of glutamine.

15. The composition of claim 14 wherein the glutamine-bearing compound  
is linked via its amino- or carboxy terminus to a secondary peptide or secondary  
30 protein.

16. The composition of claim 14 wherein the stabilized glutamine derivative comprises an amino acid sequence  $(ALA-GLN)_n$  or  $[(ALA-GLN)_n\text{-protease cleavage site-}(ALA-GLN)_p]_m$  wherein n and p are integers independently selected from a range of 1 to 100, and m is an integer ranging from 1 to 20.

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17. The composition of claim 13 wherein the glutamine-bearing compound comprises an amino acid sequence selected from the group consisting of  $(GLN)_n$   $(ALA-GLN)_n$ ,  $(GLN-Y-X)_n$ ,  $(ALA-GLN-Y-X)_n$ ,  $(Y-GLN-X)_n\text{-[protease cleavage site]}-(Y-GLN-X)_p$  and  $[(ALA-GLN)_n\text{-protease cleavage site-}(ALA-GLN)_p]_m$  wherein X and Y are independently GLN or ALA, n and p are integers independently selected from a range of 1 to 100, and m is an integer ranging from 1 to 20.

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18. The method of claim 17 wherein the glutamine-bearing compound is  $MET(ALA-GLN-GLN)_n$ ,  $MET(ALA-GLN)_n$  or  $MET[(ALA-GLN)_n\text{-protease cleavage site-}(ALA-GLN)_p]_m$  wherein n and p are integers independently selected from a range of 1 to 10, and m is an integer ranging from 1 to 5.

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19. The method of claim 13 wherein the glutamine-bearing compound is  $ALA-(GLN)_n$ , or  $(ALA-GLN)_q$  wherein n is an integer ranging from 1 to 4, and q is an integer ranging from 1 to 3.

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20. The composition of any of claims 13-19 wherein the therapeutic agent is an antiretroviral drug.

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21. The composition of claim 20 wherein the antiretroviral drug is selected from the group consisting of protease inhibitors and reverse transcriptase inhibitors.

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22. The composition of claim 21 wherein the antiretroviral drug is selected from the group consisting of zidovudine, lamivudine, stavudine and didanosine, efavirenz, nevirapine and nelfinavir.

23. The composition of claims 16, 17 or 18 wherein the protease cleavage site is selected from the group consisting of trypsin, chymotrypsin, Factor Xa and TEV.

5 24. A method of reducing the emergence of antiretroviral drug resistance in a chronic wasting patient receiving orally administered antiretroviral therapy, said method comprising the steps of

administering to said patient a composition comprising a glutamine-bearing compound; and

10 administering to said patient an antiretroviral drug.

25. The composition of claim 24 wherein the antiretroviral drug is selected from the group consisting of protease inhibitors and reverse transcriptase inhibitors.

15 26. The composition of claim 25 wherein the antiretroviral drug is selected from the group consisting of zidovudine, lamivudine, stavudine and didanosine, efavirenz, nevirapine and nelfinavir

27. The method of claims 24 wherein the glutamine composition is  
20 administered orally.

28. The method of claim 27 wherein the glutamine composition is administered prior to the administration of the pharmaceutical agent.

25 29. The method of claim 28 wherein the administration of the pharmaceutical agent is accompanied by a simultaneous administration of a second glutamine composition.

30 30. The method of claim 24 wherein the glutamine-bearing compound is comprises an amino acid sequence of the general formula (GLN)<sub>n</sub>, (ALA-GLN-GLN)<sub>q</sub>, or (ALA-GLN)<sub>q</sub> wherein n is an integer ranging from 1 to 5 and q is an integer ranging from 1 to 3.